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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/659,125	09/11/2000	Clayton L Davidson	60276	4337

23735            7590            08/11/2003  
DIGIMARC CORPORATION  
19801 SW 72ND AVENUE  
SUITE 100  
TUALATIN, OR 97062

[REDACTED] EXAMINER

MILLER, RYAN J

ART UNIT	PAPER NUMBER
2621	b

DATE MAILED: 08/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/659,125	DAVIDSON ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ryan J. Miller	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
 THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-20 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 11 September 2000 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
 

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ .
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) <input type="checkbox"/> Other: _____ .

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: The examiner requests that the status of the U.S. patent applications listed on page 1, lines 5-11, page 9, line 1, page 16, lines 12-13, and anywhere else in the application be updated in response to this office action.

### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “312” of Fig. 3 has been used to designate both watermarked blocks and a FIFO buffer. The drawings are also objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: “110” of Fig. 1. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

3. The following quotations of 37 CFR § 1.75(a) and (d)(1) are the basis of objection:

(a) The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.

(d)(1) The claim or claims must conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description. (See § 1.58(a)).

4. Claim 7 is objected to under 37 CFR § 1.75(a) as failing to particularly point out and distinctly claim the subject matter which the applicant regards as his invention or discovery. The phrase “that are likely to include a watermark signal” is indefinite. How does the system

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determine if the block is “likely” to contain a signal? Is there some type of comparison to a threshold value? Clarification of this issue is required.

Claim 18 is objected to under 37 CFR § 1.75(d)(1) as failing to particularly point out and distinctly claim the subject matter which the applicant regards as his invention or discovery. Claim 18 calls for the encoding of tracer data into the image in response to detecting a watermark in the image. The specification does not describe an embodiment where an encoding process is performed in response to a detecting process. Clarification is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 2, 6-9, and 12-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki et al. (U.S. Patent No. 5,621,810 A).

As applied to claim 1, Suzuki et al. discloses a method of image watermark decoding in a printing or scanning process comprising: intercepting portions of an image as the portions pass from one stage of the printing or scanning process to another (see column 9, lines 42-47). The reference describes that a variety of scanning procedures are initiated. Prior to the completion of the scanning process, the CPU determines 4 likely areas (i.e. intercepting portions of an image as the portions pass from one stage to another) where the red stamp mark (i.e. the watermark) is

located.); performing a watermark decoding operation on each portion (see column 9, line 66 – column 10, line 29: The reference describes that a pattern matching is performed on each of the areas to determine if the level of correlation exceeds a certain threshold value. If the correlation exceeds the threshold value, then it is indicated that the red stamp mark is present and that the item is an authentic bill (i.e. performing a watermark decoding operation on each portion.); and providing a result of the decoding operation before the printing or scanning process has completed for the image (see column 9, lines 23-25: The reference describes that if the item is determined to be authenticate, then the system executes a measure for preventing forgery (i.e. providing a result of the decoding operation). This measure is executed before the printing process is complete.).

As applied to claim 2, Suzuki et al. discloses that the image portions are sequential image portions, and all decoding operations on one portion are initiated before any watermark decoding operations are initiated on a subsequent portion in a sequential data stream of the sequential image portions (see Fig. 12: As can be seen from the figure, each of the four portions is operated on sequentially, and no portion is operated on until all of decoding operations on the previous portion are completed.).

As applied to claim 6, which is representative of claim 7, Suzuki et al. discloses that the portions are buffered, and analyzed to select blocks for watermark detection operations (see column 9, lines 42-61: The reference describes that the areas (i.e. portions) are stored in RAM 412 (i.e. buffered) and then scanned with a window of 2x2 pixels to determine blocks of black pixels (i.e. select blocks for watermark detection operations).).

As applied to claim 8, Suzuki et al. discloses that the result of the decoding operation is used to trigger an action before printing or scanning of the image is complete (see column 9, lines 23-25: The reference describes that if the item is determined to be authentic, then the system executes a measure for preventing forgery (i.e. trigger an action). This measure is executed before the printing process is complete.).

As applied to claim 9, Suzuki et al. discloses that the action includes stopping the printing or scanning of the image (see column 9, lines 25-30: The reference describes that a signal is sent to the printer unit to deposit black toner over the entire surface thereby disabling copying (i.e. stopping the printing or scanning).).

As applied to claim 12, which merely calls for a computer readable medium on which is stored software for performing the method of claim 1, Suzuki et al. discloses such a computer readable medium since all of the processing performed by Suzuki et al. is performed by computer.

As applied to claim 13, which merely calls for a system for performing the method of claim 1, Suzuki discloses such a system as can be seen in Fig. 2.

As applied to claim 14, Suzuki et al. discloses that the system includes a printer peripheral in communication with a computer, and a printer driver executing in the computer and incorporating the watermark decoder (see column 11, lines 17-19: The reference describes that the system can be utilized in a printer of the stand-alone type. Therefore the computer would be peripheral to and in communication with the printer.).

As applied to claim 15, Suzuki et al. discloses that the system includes a scanner peripheral in communication with a computer, and a scanner driver executing in the computer

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and incorporating the watermark decoder (see column 11, lines 17-19: The reference describes that the system can be utilized in a scanner of the stand-alone type. Therefore the computer would be peripheral to and in communication with the scanner.).

7. Claims 16, 19, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Bender et al. (U.S. Patent No. 6,411,392 B1).

As applied to claim 16, Bender et al. discloses a method of image watermark encoding in a printing process comprising: intercepting portions of an image as the portions pass from one stage of a printing process to another (see column 2, lines 36-40: The reference describes that image data is processed in sub-segments corresponding to less than the entire image during printing.); performing a watermark encoding operation on each portion (see column 3, lines 27-32: The reference describes each region of the image is encoded with several bits.); and providing watermarked portions of the image to a subsequent stage in the printing process (see column 11, lines 62-64: The reference describes that the encoded output image is stored in an output buffer (i.e. a subsequent stage in the printing process.).).

As applied to claim 19, Bender et al. discloses encoding calibration data into the image that is operable to detect a watermark in a geometrically distorted version of the watermarked image (see column 7, lines 24-27: The reference describes that the encoding is performed repeatedly in a variety of orientations, so that decoding errors due to misalignment, rotation, or translation can be reduced. Therefore, this is a type of calibration data that is embedded in the image.).

As applied to claim 20, which merely calls for a computer readable medium on which is stored software for performing the method of claim 16, Bender et al. discloses such a computer

readable medium since all of the processing performed by Bender et al. is performed by computer.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Suzuki et al. (U.S. Patent No. 5,689,626 A) and Conley (U.S. Patent No. 5,621,810 A). The arguments as to the relevance of Suzuki et al. in the rejection of claims 1 and 8 above are incorporated herein.

Claim 3 calls for the watermark decoding operation to be performed in a printer driver executing in a computer. While the system of Suzuki et al. clearly has a CPU, the use of a printer driver to decode a watermark is not discussed. However, Conley et al., in the same field of endeavor of image watermarking, and the same problem solving area of decoding or detecting watermarks, discloses the use of a printer driver for associating a watermark file to a document and also for selecting the watermark file (i.e. decoding the watermark) when printing the document (see column 2, line 67 – column 3, line 3).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Suzuki et al. by adding the use of a printer driver for decoding as taught by Conley et al. because “having the printer driver control printing ... introduces greater

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flexibility into the printing process”, since “the printer driver can examine entire pages for ... objects that need special processing prior to printing” (see Conley: column 2, lines 63-67).

Claim 10 calls for using information in the watermark to index related information about the image in a database. The system of Suzuki et al. uses the watermark to authenticate a document; however, the reference does not disclose using the watermark to index related information about the image in a database. Conley describes the use of a watermark for such a purpose (see column 2, line 67 – column 3, line 1 and column 4, lines 51-53: The reference describes that a watermark file is linked to a document and that during decoding the printer driver scans all of the files for a matching document (i.e. related information about the image in a database).).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Suzuki et al. by using information in the watermark to index related information about the image in a database as taught in Conley because a “minimal amount of space [is used] to link a watermark file to a document” (see Conley: column 6, lines 19-20). Therefore, a large amount of information can be linked to a document by embedding only a small amount of information in the watermark.

10. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Suzuki et al. (U.S. Patent No. 5,689,626 A) and Conley (U.S. Patent No. 5,621,810 A), as applied to claim 3 above, and further in combination with Tillery, Jr. et al. (U.S. Patent No. 6,032,201 A).

Claim 4 calls for the printer driver to include 16 bit code, the watermark operation to be implemented in 32 bit code, and the watermark operation to be invoked from the 16 bit code

through an application programming interface of the 32 bit code. Claim 5 calls for the 16 bit code to pass image data to the 32 bit code over a 16 to 32 bit bridge, and the bridge to include code enabling the 32 bit code to access data structures in the 16 bit code. These elements are absent from the combination of Suzuki et al. and Conley. Tillery, Jr. et al. discloses such a feature (see Fig. 1: As can be seen in the figure, the printer driver 103 is 16-bit, the software client 104 is a 32-bit code, and the application programming interface is met by SYSTEM.INI 102. The figure also depicts a 16 to 32 bit bridge 108.).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of Suzuki et al. and Conley by adding the type of printer driver interface as disclosed by Tillery, Jr. et al. because the use of such an interface allows “the drivers [to be] automatically enabled for the proper hardware” (see Tillery, Jr. et al.: column 2, lines 23-24). Therefore, the use of the interface taught by Tillery, Jr. et al. would allow for the watermarking system to be automatically used on any computer.

11. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Suzuki et al. (U.S. Patent No. 5,689,626 A) and Rhoads (WO 97/43736). The arguments as to the relevance of Suzuki et al. in the rejections of claims 1 and 8 above are incorporated herein.

Claim 11 calls for the action to include using information in the watermark to fetch a web page related to the image. This element is absent from the teachings of Suzuki et al.; however, Rhoads, in the same field of endeavor of image watermarking, discloses such a feature (see page 80, lines 16-23: The reference describes that by selecting a read watermark option, a user can discover information relating to the image from an external source such as the World Wide Web.).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Suzuki et al. by adding the ability to use information in the watermark to fetch a web page related to the image as taught in Rhoads because such a system allows for a watermark containing a small amount of data to be embedded into an image and then linked to a large amount of data. Therefore, the watermark can be easily embedded into the image due to its relatively small size, and contain a large amount of information, since it is linked to a web page.

12. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Bender et al. (U.S. Patent No. 6,411,392 B1) and Stefik et al. (U.S. Patent No. 5,629,980 A). The arguments as to the relevance of Bender et al. in the rejection of claim 16 above are incorporated herein.

Claim 17, which is representative of claim 18, calls for encoding tracer data into the image. Bender et al. discloses encoding authentication information into the image; however, the reference does not teach encoding tracer data. Stefik et al., in the same field of endeavor of image watermarking, discloses embedding tracer information (see column 48, lines 24-26).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Bender et al. by adding the use of tracer information as taught in Stefik et al. because embedding tracer information will “discourage unauthorized copying of print outs” (see Stefik et al.: column 48, lines 20-21).

***Conclusion***

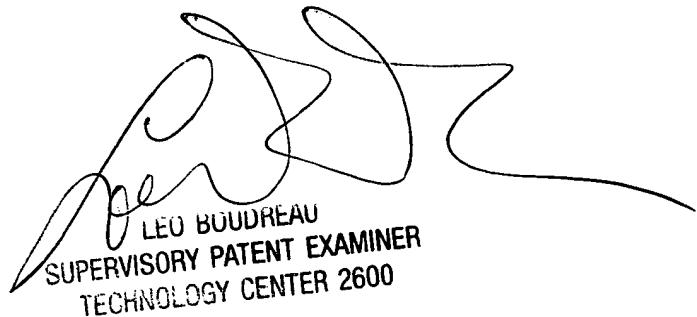
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan J. Miller whose telephone number is (703) 306-4142. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4750.

Ryan J. Miller  
Examiner  
Art Unit 2621

*jm*  
Ryan J. Miller  
July 31, 2003



LEO BOUDREAU  
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